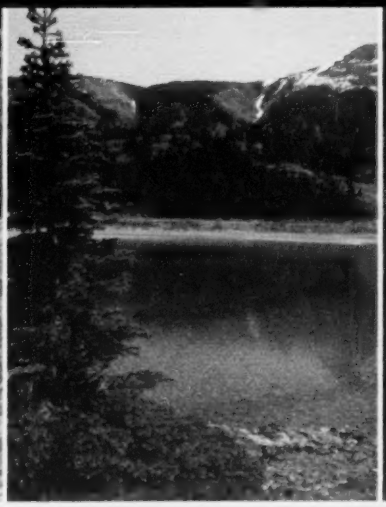


Fish and Wildlife Branch Highlights

2011

Yukon
Environment

© 2012 Environment Yukon
ISBN: 978-1-55362-544-5

Photos:
Government of Yukon unless otherwise noted.

Copies available from:
Environment Yukon
Fish and Wildlife Branch, V-5A
P.O. Box 2703, Whitehorse, Yukon Y1A 2C6
Phone (867) 667-5721, Fax (867) 393-6263
Email: environmentyukon@gov.yk.ca

Also available online at:
www.env.gov.yk.ca

Table of Contents

Learning from the land 1
Angler harvest surveys 3
Assessment of Arctic grayling populations using snorkel surveys 5
Managing the Aishihik wood bison herd 6
Environment Fair 2011: Learning from the land 8
Grizzly bears on the Yukon North Slope 10
Ogilvie Mountains collared lemmings 11
Monitoring Yukon's moose populations 13
Surveying Dall's sheep populations 14
Southern Lakes Wildlife Coordinating Committee 17
Yukon woodland caribou composition surveys 18
Yukon Wolf Conservation and Management Plan 20
Fish and Wildlife technical reports 2011 22

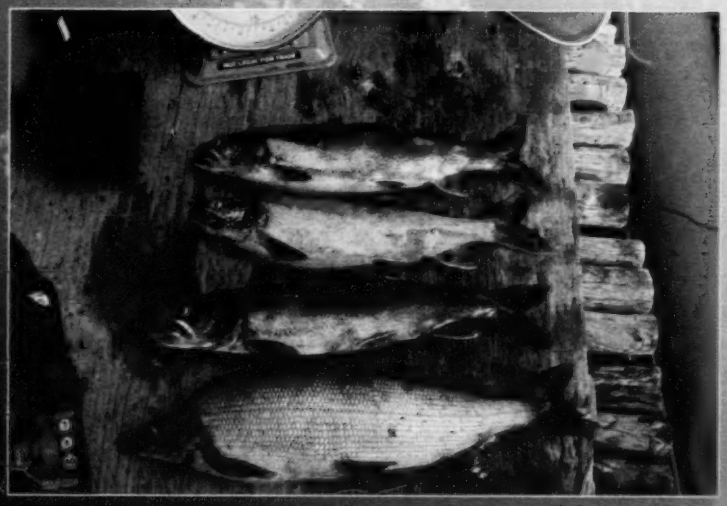
Learning from the land

The Fish and Wildlife Branch takes pride in the ongoing inventory and monitoring programs carried out throughout the territory. Some projects, such as the caribou composition surveys, are done every year to "take the pulse" of our woodland herds. Others, such as the moose population surveys, are done in response to community concerns and emerging issues. All contribute to more knowledge for better decision making about our environment.

Learning from the land also means working with the traditional users of the land and other community members, such as through the Southern Lakes Wildlife Coordinating Committee, the review of the Wolf Conservation and Management Plan, or asking anglers about their catch.

Information we gather is used to assess the status of populations, review harvest regulations, and provide input into environmental assessments. And, when we share this information through technical reports, the ongoing Wildlife Viewing Program and special events such as the Environment Fair, all Yukoners are given the opportunity to learn from the land.

If you would like more information about the projects highlighted in this booklet or any of our other projects, contact your regional biologist or go to **www.env.gov.yk.ca**.



Results of angler harvest surveys are compared with past results to determine trends in the fishery and the sustainability of the current level of harvest. This information guides allocation and regulation decision making processes.

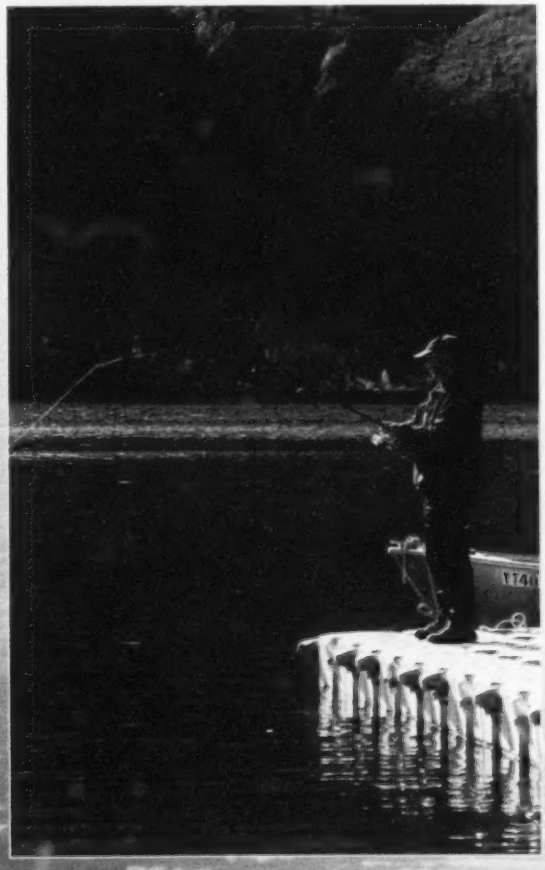
Angler harvest surveys

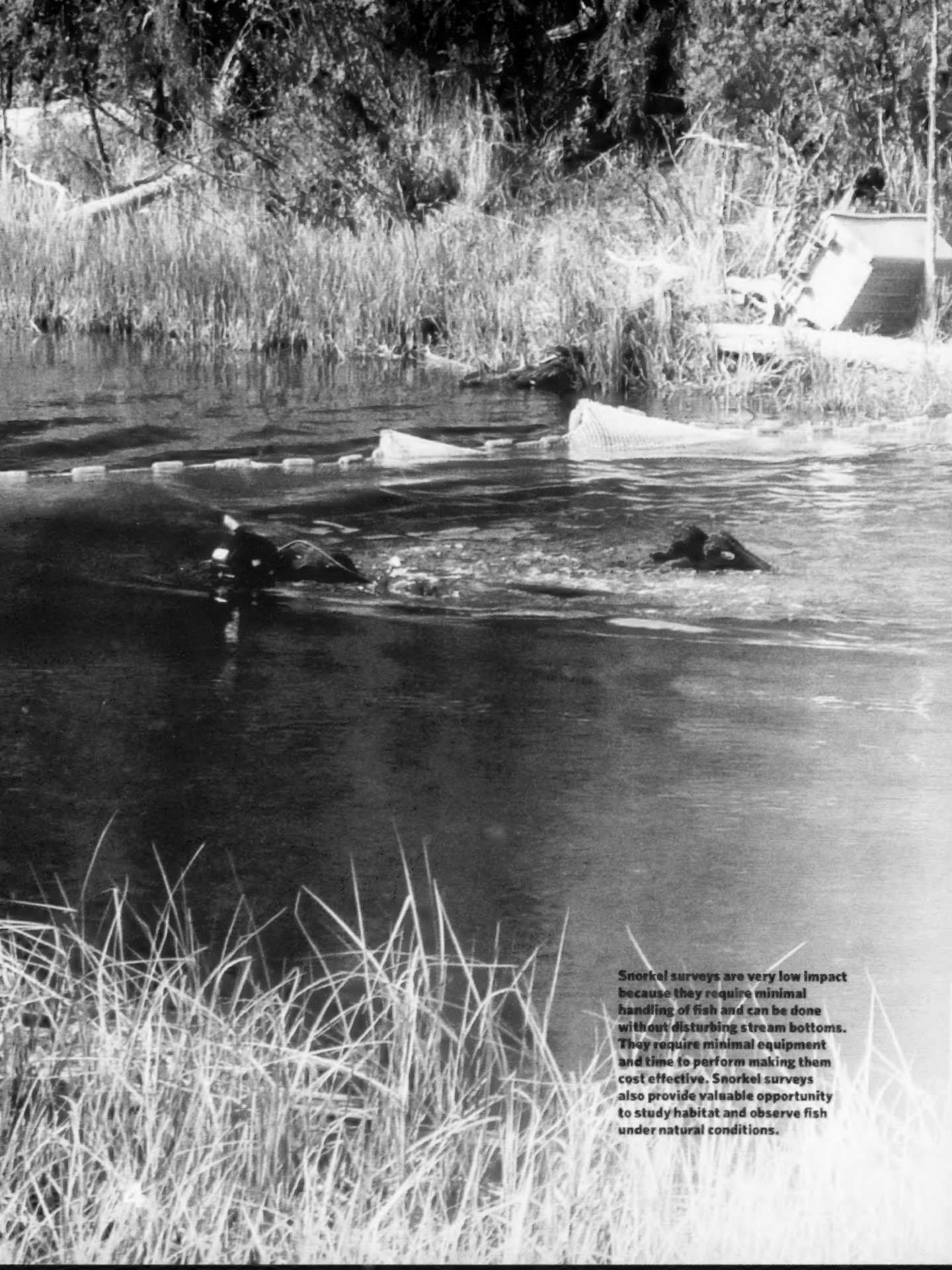
Each year, Environment Yukon conducts angler harvest surveys on several high-use recreational fisheries in Yukon. The primary goal of these surveys is to determine angler effort, catch rates and harvest, as well as to gather biological data from fish harvested in the recreational fishery. These surveys are a central source of information for fisheries management in Yukon.

In 2011, anglers were surveyed on Quiet, Louise (Jackson), Fish, and Caribou lakes as well as on the Teslin River at Johnson's Crossing. Quiet Lake was identified in the *Community-based Fish and Wildlife Management Plan — Teslin Tlingit Traditional Territory 2007–2012* as a lake of interest and in the State of Yukon Fisheries report (SOYF) as being harvested at sustainable limits. This lake has not been surveyed since 2001. Louise (Jackson) / Caribou Lakes are both identified in the SOYF as lakes where the harvest is above the sustainable limit. Johnson's Crossing is an identified priority in the Teslin plan (as above) and the SOYF.

All interviews were done face-to-face on selected sample days throughout the summer. Anglers were asked a standard set of questions about the social and biological aspects of the fishery, such as the time spent angling and the species and number of fish caught.

Environment Yukon uses the information collected in the harvest surveys, in combination with other fish and fishery-related assessments including estimates of lake productivity, to determine if the angler effort and harvest are sustainable. Survey information also helps biologists to determine appropriate management strategies such as educational initiatives or regulation changes. Regular monitoring of key stocks can also avoid costly interventions if harvest is too high.





Snorkel surveys are very low impact because they require minimal handling of fish and can be done without disturbing stream bottoms. They require minimal equipment and time to perform making them cost effective. Snorkel surveys also provide valuable opportunity to study habitat and observe fish under natural conditions.

Assessment of Arctic grayling populations using snorkel surveys

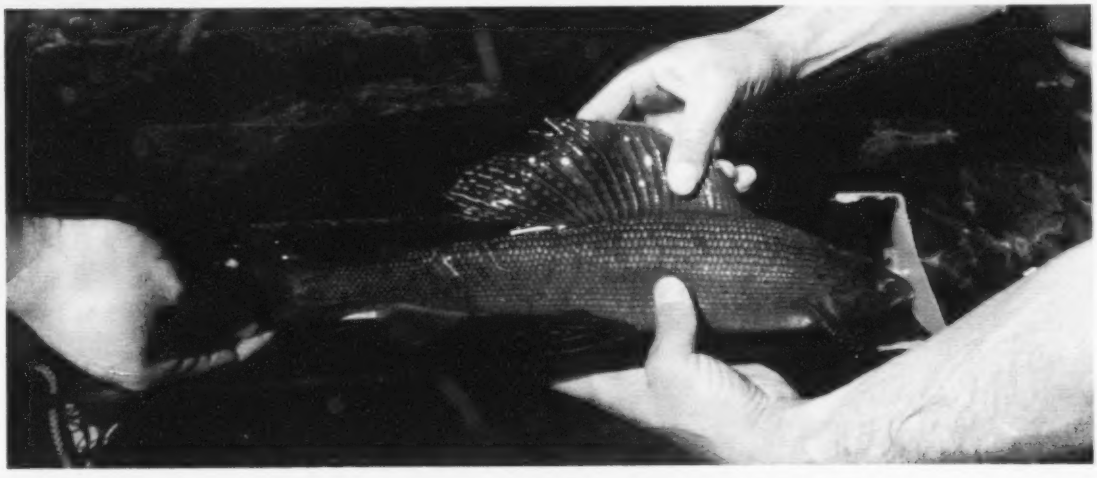
Anglers in Yukon target Arctic grayling more than any other fish species. Despite the importance of this fishery and the potential for over-harvest, there is no ongoing monitoring program in place for grayling. Angler harvest surveys have been done on occasion and are useful for understanding the quantity and quality of angling pressure and harvest. However, angler surveys do not provide information on the abundance of grayling. With limited information available, it is difficult to make effective management decisions.

The Fish and Wildlife Branch recently reviewed several methods for monitoring grayling populations in a Yukon context. As a result, in 2010 we began to develop a program that incorporates snorkelling surveys to view the fish directly underwater. The objective of the program is to develop a suitable snorkel-based technique for counting grayling and obtaining instantaneous population estimates of both spawning aggregations and summer feeding populations.

To date, we have used this snorkel-based technique to assess grayling populations in the Lubbock River and Lynx Creek. A small number of grayling were tagged prior to each survey. Swimmers then counted the tagged and untagged fish and used these numbers to estimate population size and density.

Overall this method has been very successful and proved to be a relatively non-intrusive, effective, and inexpensive way to obtain baseline abundance and density estimates of Arctic grayling populations. This method can also be expanded to different stream types throughout Yukon.

The Status of Yukon Fisheries report identified improved monitoring and assessment for Arctic grayling as a management priority.



Managing the Aishihik wood bison herd

Managing the wood bison population in Yukon is challenging. Any decisions or actions must provide for the recovery of the species (as required by the federal *Species at Risk Act*) while addressing community concerns and allowing local people to benefit from the resource, primarily through harvesting opportunities.

In 2011, the Fish and Wildlife Branch continued to monitor trends in the population through a census program that uses a mark-resight method to obtain information on size, distribution, and composition. A total of 101 bison were marked using paint-balls. Crews then counted all bison seen during subsequent surveys, noting the number with and without paint-ball marks. These numbers allowed for the calculation of a population estimate. The results of the 2011 census indicate that the Aishihik herd is stable to slightly increasing and currently numbers about 1200 bison.

Because of the high harvest rate, small population size, and conservation status of the herd, we need to repeat the census regularly. The 2011 census builds on those conducted in 2007 and 2009.

We also continued to collect productivity, recruitment, and adult survival data by locating collared bison four times this past year. We monitored bison movements and location to obtain better information on the distribution (including range expansion and shifts in range use) and habitat use of populations.

The Fish and Wildlife Branch also continues to assess the impact of the bison herd on woodland caribou, moose, and sheep by examining potential competition between these species on their shared range.

Wood bison are managed cooperatively by the Yukon Wood Bison Technical Team. This team is composed of representatives of the Yukon government, relevant First Nations and Renewable Resources Councils, and other stakeholders. Their primary responsibility is to implement the Yukon Bison Management Plan and support Environment Yukon's adaptive management framework for wood bison. The team recommends an Annual Allowable Harvest (AAH) of wood bison and strategies for meeting the harvest to the Wood Bison Management Committee.

Whenever bison are captured, we collect biological samples for genetic analysis and disease testing. If the Yukon recovery project is to be successful in the long-term, we need to ensure that our populations remain genetically pure and disease free.

Monitoring population trends is crucial for setting AAHs under an adaptive framework. Monitoring is also important to ensure populations meet recovery objectives as well as management plan goals.

Information on hunting bison in Yukon is summarized in the Hunt Wisely brochure available at Environment Yukon offices and at www.env.gov.yk.ca/bison.

Environment Fair 2011: Learning from the land

The Environment Fair is an opportunity to share information about Yukon's vast wilderness with the public. Participants included a number of Yukon government departments, Environment Canada, and Yukon College, as well as non-governmental organizations with a focus on Yukon's environment.

In 2011, the Fish and Wildlife Branch developed a collective display that required the collaboration of the Species, Habitat, Regional, and Biodiversity sections, each with their own focus and specialties. Led by the Wildlife Viewing Program, representatives from each of the sections worked together to create and present displays that highlighted projects under the fair's theme of "Learning from the Land".

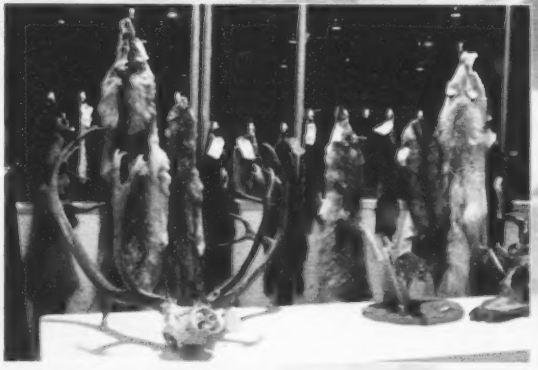
The key objective of the fair's activity was to illustrate the variety of tools, including scientific measurement and traditional knowledge, that are used to make decisions regarding wildlife management. Displays were designed to be engaging and presented in a way that was easily understood by the public. A lot of effort went into providing interpretation along with the information. We wanted the public to have an opportunity to handle equipment, speak directly with researchers, ask questions, and understand a bit more about Yukon's biodiversity.

The entire display was divided into habitats representing Yukon's different environments. Biologists were stationed at each of these representative habitats and encouraged visitors to try activities that mimic actual research. For example, visitors had the chance to learn how to use a radio collar transceiver to track caribou, measure plant diversity, count the rings on sheep horns, and about different bat research techniques. The Yukon's Chief Veterinary Officer performed a wolverine necropsy and explained to visitors what we learn from the carcasses submitted by trappers. Specialists from the Conservation Data Centre challenged people to match up names with pictures of rare Yukon plants.

Approximately 1300 people visited the 2011 Environment Fair, making this a hugely successful outreach event and a great opportunity for the public to learn more about what's happening in the Fish and Wildlife Branch.

Using a large tub of water and gardening supplies, hand-painted rubber frogs were hidden amongst landscaping vegetation to demonstrate camouflage and talk about the fragility wetland ecosystems.

Visitors were challenged at the furbearers table to identify each of the species of furs on display and determine it was aquatic or terrestrial.



The fisheries biologists asked students to age Lake Trout using their tiny ear bones and then graph that relationship with the fish length to teach them that not all old fish are big.

In the tundra habitat, visitors were given a biologist's eye view of caribou, and challenged to count and classify the animals in the photos.

Upon entering the exhibit, visitors were given a wildlife viewing checklist (similar to a birding checklist) encouraging them to find signs of the more than 100 species represented in the booth. There were mounted animals on display, tracks taped to the floor, bird calls being played on speakers, antlers and horns, pictures of rare arctic plants, images of alpine butterflies hanging from the ceiling, a bat cave for kids to crawl into, fish heads to dissect, videos of migrating waterbirds, and insects under a microscope.

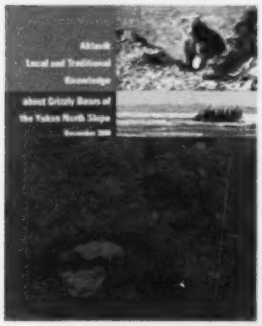
Grizzly bears on the Yukon North Slope

Between 2004 and 2011, the Government of Yukon, in partnership with Parks Canada and the Aklavik Hunters and Trappers Committee, conducted a multi-faceted study of the grizzly bear population on the Yukon North Slope. The study included several science-based activities as well as projects to gather information from local residents.

A DNA mark-recapture study provided information on movement and population size by collecting hair samples from bears using special traps. GPS collars were used to follow bear movement and to find out what habitat the bears were using at different times of year. This part of the study was designed to determine how changes in habitat can influence population size and movements. The habitat work also provided population estimates based on the amount of good habitat for grizzly bears.

As part of the traditional knowledge component of the study, Aklavik residents (local harvesters and others who spend considerable time on the land) were interviewed to record their observations of bear activity and to gather information on harvesting.

The final analysis of the study is currently underway.



As part of the Yukon North Slope Grizzly Bear Project, biologists are trying to find out where bears are denning and if changes to the permafrost might affect the availability of denning habitat.

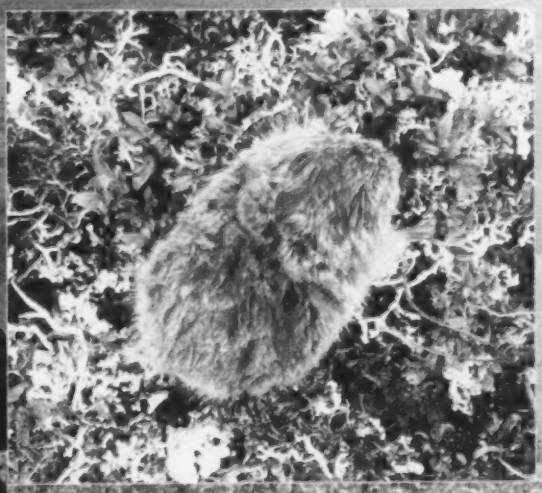
An interim report of the Yukon North Slope Grizzly Bear Project can be found at www.wmacns.ca/pdfs/186_rpt_grizzly_midterm.pdf

The report on the traditional and local knowledge study can be found at www.wmacns.ca/pdfs/272_WMAC09136=rpt_griz_knwldg_web3.pdf

Ogilvie Mountains collared lemmings

The Ogilvie Mountain collared lemming (*Dicrostonyx nunatakensis*) is found in only one place in the world — Yukon's Ogilvie Mountains. These small mammals are considered a species of conservation concern because of their extremely limited distribution, small population size and vulnerability to activity.

Biologists have very little information on the lemmings' range or biology. Previous studies have only located them in very small numbers on one site in Tombstone Territorial Park. Environment Yukon needs more information to assess the conservation status of this rare species and plan for its management.



In August 2011, Environment Yukon conducted a lemming range assessment study on 12 mountains all located within Tombstone Territorial Park and distributed among five distinct ranges. The study included a survey, range mapping, and an assessment of habitat characteristics. We used standard small mammal traps in suitable high alpine sites in our search. Sample sites were accessed by foot and helicopter.

The study found lemmings at two previously unknown sites. Both sites are in the Seela Range, on distinct mountains 5.7 km apart, and located 25.9 km and 29.6 km west of the one known location. These new sites show the lemmings have a much larger range than was previously believed. This finding also suggests that the species may be more widespread in suitable habitats within the local area. During the study we also identified similar habitat in the area that could be surveyed in the future to confirm the presence of lemmings throughout the Ogilvie Mountains.

Environment Yukon needs information on the distribution and habitat use of the Ogilvie Mountain collared lemming to inform land use decisions, particularly related to any mining activity within their range. More information is also required to assess the status of this species.

Ogilvie Mountain collared lemming study also contributes to monitoring of species of conservation concern in Yukon Parks.

The *2008-2013 Community-based Fish & Wildlife Work Plan for the First Nation of Na-Cho Nyäk Dun Traditional Territory* recommended a census of moose in 2011. High mineral development interests and proposed road developments to new project sites throughout the district are creating access to an area that is already close to exceeding identified harvest thresholds.

The Fish and Wildlife Branch uses monitoring surveys to assess moose distribution, abundance, and population composition. These surveys are a key component of our moose management strategy.

Current moose population information in the M'Clintock area near Whitehorse is needed to support the development of a comprehensive harvest management plan, as recommended by the Southern Lakes Wildlife Coordinating Committee.

Monitoring Yukon's moose populations

The Fish and Wildlife Branch periodically conducts surveys of moose populations in high priority areas throughout Yukon. In 2011, we surveyed moose populations in the Mayo, Faro, Burwash, and Whitehorse areas. These four surveys provide information on moose population abundance, distribution, composition, and trend (whether moose numbers are increasing or decreasing). We use this information to set allowable harvest rates and assess whether past harvest rates have been sustainable. It is also used to evaluate the likely impacts and mitigation options for proposed land use activities.

This was the first time we had surveyed the Burwash area. We found that moose abundance was quite variable, but overall moose density was near the Yukon average. However, the proportion of bulls in the population was quite low and calf production appears to have been poor, raising concerns about the long-term welfare of the area's moose population.

Moose abundance in the Mayo area has remained stable or declined somewhat since the last survey of the area in 2006. Densities are now near or slightly above the Yukon average. Calf production appears to have been good in 2010 and 2011. The proportion of mature bulls in the population is below the Yukon average but remains sufficient to ensure adequate breeding of cows during the rut.

Overall moose abundance in the M'Clintock area, northeast of Whitehorse, has remained relatively stable since the previous survey in 1999. However, accessible portions of the area have substantially fewer moose than more remote portions. The proportion of mature bulls in the population has increased since 1999 and is now above the Yukon average. Calf survival also appears to be good.

While moose abundance and population composition in the entire Faro survey area remain similar to when last surveyed in 2004, moose numbers northeast of the mine site have shown a continued downward trend since first surveyed in 1997. In addition, the number of mature bulls in this area is near the minimum needed to ensure successful breeding during the rut, raising further concerns about the long-term welfare of this population. Calf production throughout the survey area was probably not high enough to maintain a stable moose population.

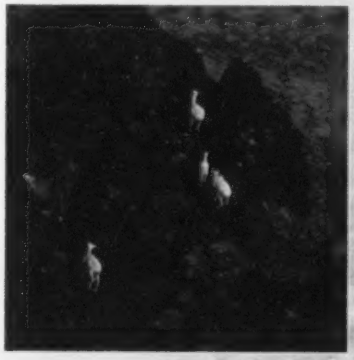
Surveying Dall's sheep populations

In 2011, Environment Yukon conducted surveys of the Dall's sheep populations in the Ruby, Sifton and Anvil ranges, as well as in the Kluane Game Sanctuary. Biologists used a helicopter to collect information on the distribution and minimum number of sheep in each area. They also recorded the age group and sex of all observed sheep to determine the composition of these populations.

The sheep population in the western portions of the Ruby Range is the most studied population in the Yukon. Environment Yukon has collected information from this area at roughly three year intervals since 1974. Wildlife managers have used this information to develop a model for predicting trends and changes in sheep populations elsewhere in Yukon. Ongoing surveys are needed to update, calibrate, and assess the model.

The survey in the Kluane Game Sanctuary was a cooperative project of the Kluane First Nation and Environment Yukon. The survey included the four subzones where limited numbers of special permits have been available in recent years to harvest sheep as well as the adjacent slopes in Kluane National Park. This area was previously surveyed in 2005.

In the Anvil Range an additional survey was conducted to identify lambing areas. Mineral claims in the range increased from 50 to 3000 in 2010. Exploration activities are focusing on identified mineral deposits, several of which directly overlap areas identified in the Wildlife Key Area database as important for sheep life functions. We need the information from both the composition and lambing surveys to assess the current distribution of sheep in the Anvil Range in relation to the significant exploration activity. It is also needed to establish baseline information that can be used to monitor any displacement from traditional ranges. Sheep in the Anvil Range were last surveyed in 2002.



Sheep hunting is an important recreational hunting opportunity for many resident and non-resident hunters. The information we get from these surveys help us to evaluate whether the harvest of sheep in these areas is sustainable and falls within management guidelines.

Current information on sheep populations supports environmental assessments of mineral exploration and other developments in these areas.

Yukon has more wild thinhorn sheep than any other jurisdiction of Canada. The white-coloured Dall's sheep (*Ovis dalli dalli*) is one of the two subspecies of thinhorn sheep that live in Yukon. The other is the grey-coloured Stone's sheep (*Ovis dalli stonei*).

The Southern Lakes Wildlife Coordinating Committ
dedicated to the recovery and management of carib
moose, sheep and other wildlife populations and th
habitat in the Southern Lakes area.

Members of the Southern Lakes Wildlife Coordinat
Committee are delegates of the governments of the
Carcross/Tagish First Nation, Champagne and Aish
First Nations, Kwanlin Dün First Nation, Ta'an Kwä
Council, Taku River Tlingit First Nation, Teslin Tlin
Council, Canada, Yukon, and British Columbia.

More information on the Southern Lakes Wildlife
Coordinating Committee can be found at:
www.southernlakeswildlife.ca

Southern Lakes Wildlife Coordinating Committee

The Southern Lakes Wildlife Coordinating Committee was established in January 2008 under the Carcross/Tagish First Nation and Kwanlin Dün First Nation final agreements. The committee's key responsibility is to prepare a Regional Wildlife Assessment for the parties. This assessment will include recommendations to support the co-ordinated management of area's wildlife and habitat.

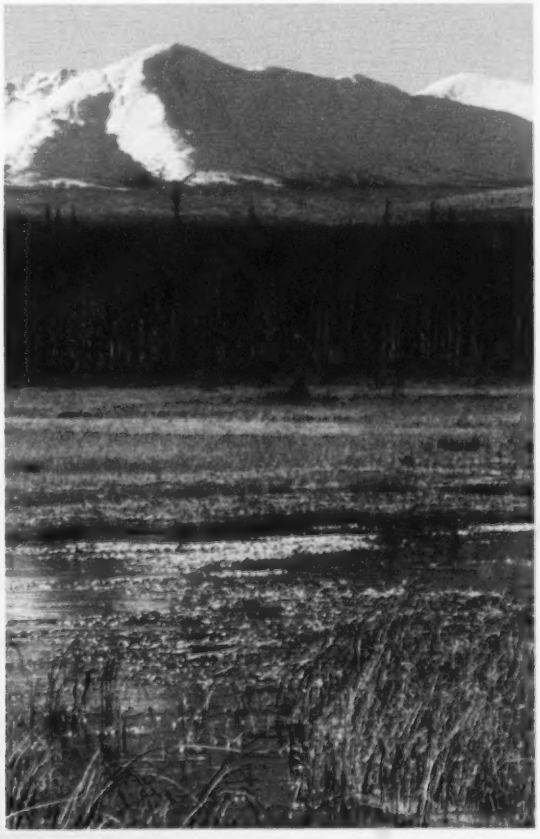
Throughout 2011, the Committee met monthly to continue the preparation of the assessment. The assessment is organized by chapters that focus on the following species groups:

- Ungulates (e.g., caribou and moose)
- Large carnivores (e.g., wolves and bears)
- Furbearers
- Small mammals
- Upland game birds
- Resident birds
- Birds of prey
- Migratory birds
- Waterfowl
- Amphibians

Each chapter summarizes the status of knowledge, stressors and threats, and existing management plans and activities for each group. The assessment also describes the overarching habitat issues that affect the Southern Lakes area.

The committee also began to develop recommendations that will provide a common approach and direction for the nine governments in the region — First Nations, territorial, provincial and federal — in the coming years. These include recommendations to improve and maintain cooperation and communication among the responsible managing parties.

The committee's work will conclude in March 2012 with the completion of the Regional Wildlife Assessment and recommendations.



Yukon woodland caribou composition surveys

Fall composition surveys are one of the key tools Environment Yukon uses to monitor mountain-dwelling woodland caribou herds in Yukon.

In 2011, we surveyed ten herds (see map). Helicopter survey teams often included an observer from the local First Nation. The caribou were counted and classified into one of four categories: calves, cows, immature males, or mature males.

A number of these herds have been monitored relatively continuously for many years. Long-term monitoring has been crucial for understanding and assessing factors relating to patterns in both recruitment and sex ratios (the number of bulls relative to the number of cows).

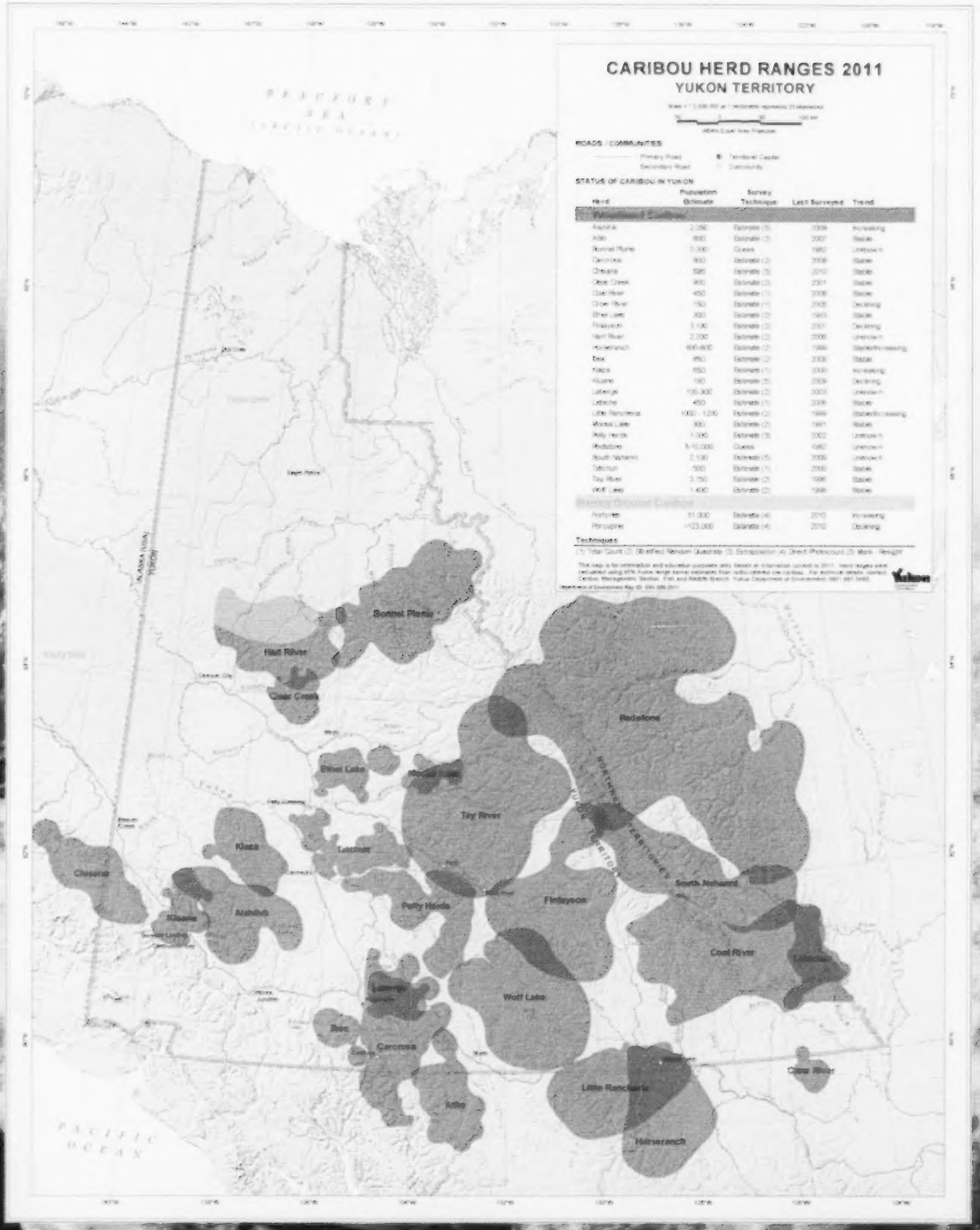
Recruitment is calculated by looking at how many calves are associated with cows in the fall. This indicator fluctuates greatly because the rate of calf survival is one of the most variable for caribou populations. Tracking recruitment allows wildlife managers to assess the productivity of the herds which contributes to decisions related to sustainable harvest rates. Recent research by Environment Yukon biologists has found that much of the annual variability observed in recruitment rates can be explained by large-scale climatic conditions originating in the north Pacific Ocean. These climatic conditions may influence birth rates, predation rates, calf growth and development, and subsequent survival.

Sex ratios, on the other hand, show much less annual variability and may be more influenced by longer-term processes such as harvest rates over a number of years. Results from the 2011 surveys indicate that bull to cow ratios of the Aishihik, Finlayson, and Tatchun herds were below average but above average for the Burwash, Chisana, and South Nahanni herds. In general however, sex ratios followed long-term averages.

The composition of any herd is a valuable indicator of its health. Composition surveys determine how many males and females are in a herd and the number of calves. Biologists use these numbers to estimate the ratios of calves to cows and bulls to cows and to calculate if the herd is increasing, decreasing or maintaining a stable level.

Woodland caribou in Yukon are part of the Northern Mountain population (*Rangifer tarandus caribou*). The national *Species at Risk Act* recognizes the Northern Mountain population as a species of Special Concern.

The first recommended objective in the *Management Plan for the Northern Mountain Population of Woodland Caribou in Canada (2011)* is to determine herd status and trends over time. Composition surveys are a component in providing this important information.


CARIBOU HERD RANGES 2011
YUKON TERRITORY
ROADS / COMMUNITIES
STATUS OF CARIBOU IN YUKON
Techniques
Sonmet Plains
Hart River
Clear Creek
Redstone
Rose River
Twy River
Klaza
Chisana
Aishihik
Kluane
Ruby Range
Finlayson
South Nahanni
Coal River
Wolf Lake
Carcross
Little Ranchería
Horsecanch
Alaska Highway
PACIFIC OCEAN

Yukon Wolf Conservation and Management Plan

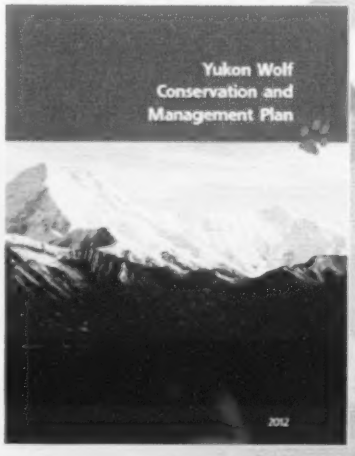
On August 2, 2011, the Government of Yukon and the Yukon Fish and Wildlife Management Board (YFWMB) released the draft Recommended Yukon Wolf Conservation and Management Plan for public review. The plan was prepared by a six-person review committee established in 2010. The committee was made up of representatives of Environment Yukon and the YFWMB. Their mandate was to review and update the plan for wolf conservation and management prepared in 1992.

The committee consulted extensively while preparing the draft plan, holding 14 community meetings, a workshop with YFWMB members, Renewable Resources Councils, and a workshop with Yukon First Nations. Anyone interested in providing comments was encouraged to participate.

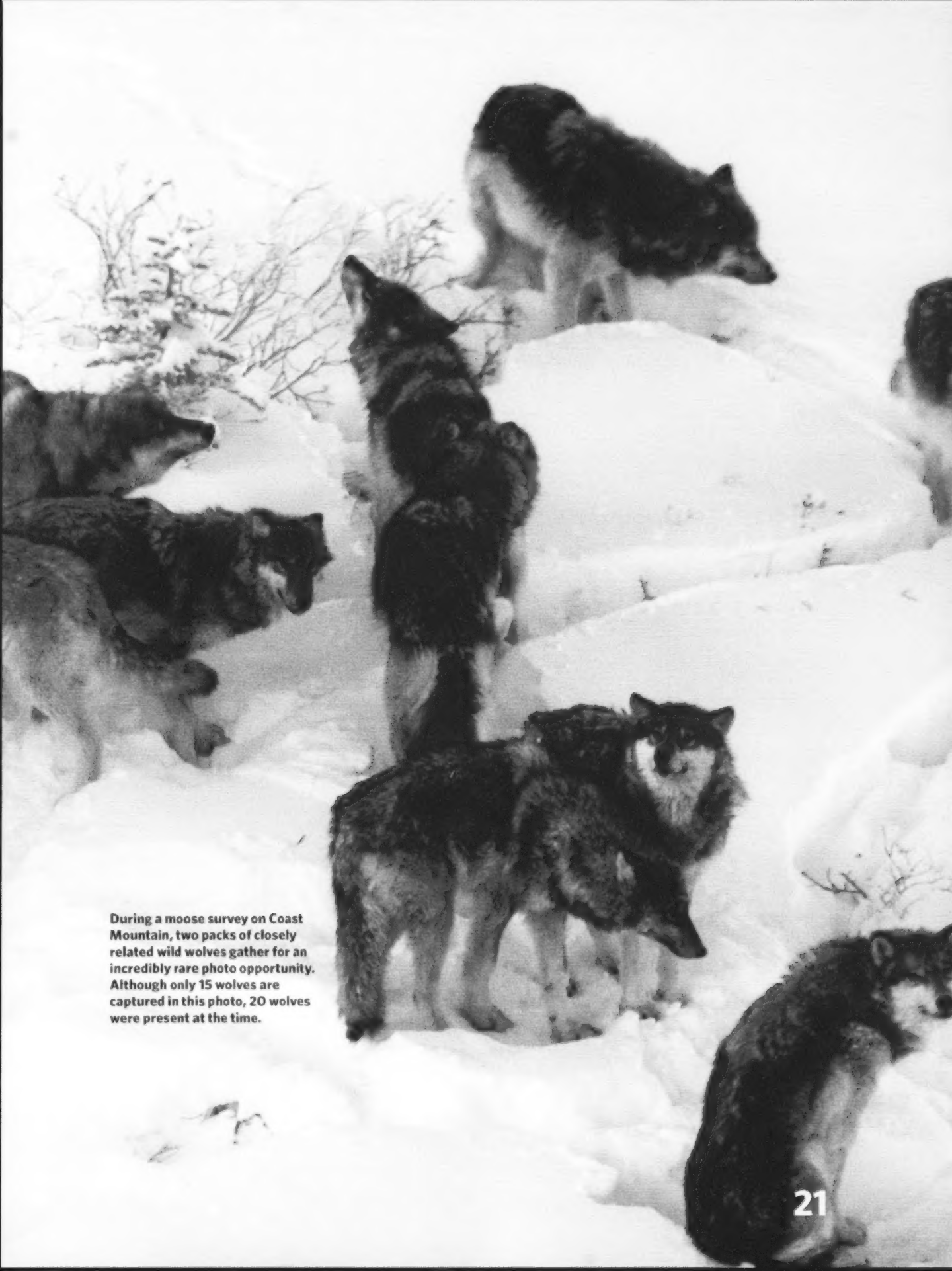
The draft plan set out 27 recommendations to achieve seven goals that recognize the importance of maintaining healthy and balanced numbers of wolves in the ecosystem. Recommendations cover a wide variety of subjects that include the hunting and trapping of wolves, strategies to reduce conflict with agricultural interests, as well as population monitoring and other research activities. The plan also identifies special conditions under which the Yukon government may reduce wolf population numbers to help ungulate populations recover.

All the feedback received during the public review was considered in a revision of the plan. The committee reviewed 42 written submissions as well as the latest research in wolf and ungulate management. It submitted the *Recommended Wolf Conservation and Management Plan* to the YFWMB in July 2011. The YFWMB recommended the plan to the Minister of Environment in December 2011.

More information on the Yukon Wolf Conservation and Management Plan can be found at:
www.yukonwolfplan.ca



Wolf management and conservation is a complex topic that must address many different biological, social, and economic needs, concerns and values. The Recommended Yukon Wolf Conservation and Management Plan identifies the principles and goals that wildlife managers use when making decisions that affect wolves and their populations.



During a moose survey on Coast Mountain, two packs of closely related wild wolves gather for an incredibly rare photo opportunity. Although only 15 wolves are captured in this photo, 20 wolves were present at the time.

Fish and Wildlife Technical Reports 2011

These reports were finalized and published in 2011:

- Angler Harvest Survey: Kathleen Lake 2004.
- Angler Harvest Survey: McIntyre Creek 2004.
- Angler Harvest Survey: Kusawa Lake 2006.
- Angler Harvest Survey: Teslin Lake 2008.
- Angler harvest Survey: Pine Lake 2009.
- Angler Harvest Survey: Fish Lake 2010.
- Lake Trout Population Assessment: Lake Laberge 1991, 1999, 2004, 2009.
- Lake Trout Population Assessment: Teslin Lake 1997, 2003, 2009.
- Lake Trout Population Assessment: Bennett Lake 2001, 2009.
- Application of a New Method for Monitoring Lake Trout Abundance in Yukon: Summer Profundal Index Netting (SPIN).
- Stocked Lakes Program: Results from an online survey of Yukon anglers, 2011.
- Peel Watershed Fish Habitat Assessment.
- Does training trappers improve wolf trapping success? Results of the community-based wolf trapping initiative.
- Can non-lethal methods effectively reduce wolf numbers? Results of the Aishihik wolf fertility control experiment.
- Wolf survey in the Nisutlin River basin, 2011
- Dall's sheep survey: Southern Lakes Region, 2009.
- Status of Dall's sheep (*Ovis dalli dalli*) in the Northern Richardson Mountains.
- Mountain Goat Survey of the Southwest Yukon and Northwest British Columbia, 2007.
- Pickhandle Lakes Habitat Protection Area: Aerial Surveys for Muskrat Push-ups & Beaver Activity 2010
- M'Clintock Early-Winter Moose Survey 2011

These, and many other reports, are available for download from **www.env.gov.yk.ca**